EXECUTIVE INSIGHTS

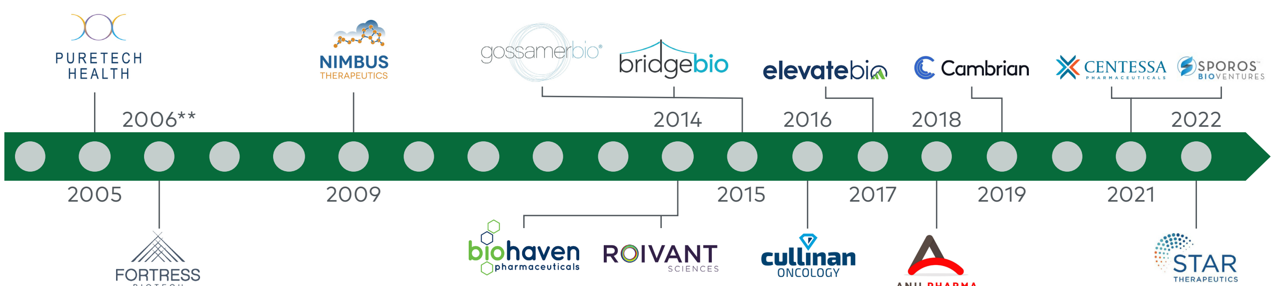
The Hub-and-Spoke Model: An Emerging Biopharma Trend

While the past few years have seen a high volume of initial public offering (IPO) activity throughout the biotech sector — particularly during 2020 and 2021 — in the near term, funding for biotech companies is likely to come increasingly from private and alternative sources. This shift in investor focus may lead biotech firms to consider evolving their business models to ones that allow for greater flexibility in fundraising, in order to attract this type of investor.

As "hub-and-spoke" business models have emerged within biopharma (see Figure 1), so has the potential need for alternative funding approaches. Hub-and-spoke model companies use a centralized portfolio management team (the parent company)[1] that owns and controls a set of subsidiaries.[2] The subsidiaries remain focused on their asset(s), program(s) and therapeutic area(s), while the parent company provides centralized leadership and resources to subsidiaries across therapeutic areas, indications and/or technologies.[3] Subsidiaries may be spun out from the parent or aggregated. For example, Roivant began by purchasing shelved assets

Figure 1

Timeline of hub-and-spoke model*

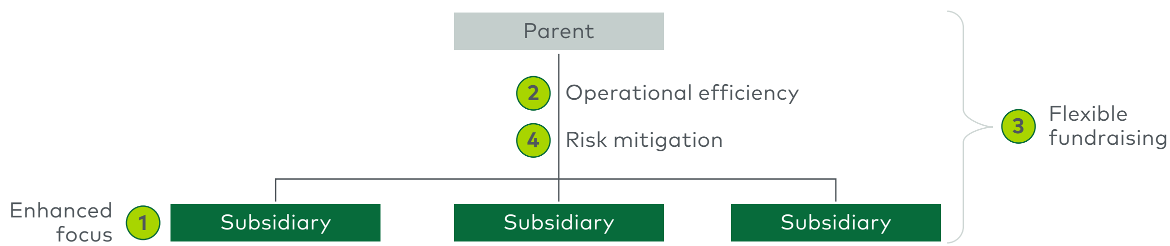


*Not exhaustive; based on founding of the parent; does not include Sumitovant, which was launched in 2019 after Sumitomo Dainippon Pharma acquired five Roivant subsidiaries. Sumitovant is a wholly owned subsidiary of Sumitomo Dainippon Pharma
**Founded under the name Coronado Biosciences in 2006; it evolved into a hub-and-spoke company by ~2015, leading to the name change
Source: L.E.K. research and analysis

from pharmas and then spinning out subsidiaries (Axovant first).[4] Conversely, Centessa was formed through the aggregation of 10 private biotech firms,[5] each focused on a single asset or biological pathway. There may be variations on this theme and different names used to describe the models (e.g., "portfolio model," "LLC holding company model");[6] in this *Executive Insights*, L.E.K. Consulting considers these companies more generally.

This operating model differs from the traditional model in which biotechs focus on the development of a diverse pipeline of assets, housing the infrastructure required to execute and scaling it as assets progress toward commercialization (see Figure 2). The hub-and-spoke

Figure 2
Potential benefits of the hub-and-spoke model to biotech and to investors



Source: L.E.K. research and analysis

model incorporates best practices from venture capital and big pharma and typically provides benefits for the parent, its subsidiaries and its investors, including:

1. Enhanced focus
2. Operational efficiency
3. Flexible fundraising
4. Risk mitigation

Based on its extensive work within this biotech system, L.E.K. has assessed the possible benefits for hub-and-spoke operations:

1. Enhanced focus

While hub-and-spoke parents are diversified across the subsidiaries, the subsidiaries often remain specialized in a single asset, technology or therapeutic area, allowing for greater expertise per subsidiary (see Figure 3). For example, Roivant has several subsidiaries ("-vants"), including Immunovant, a single-asset, autoimmune disease-focused company; Genevant, a preclinical-stage company focused on a lipid nanoparticle, nucleic acid delivery platform; and Dermavant, a dermatology-focused company, with several clinical-stage assets. Likewise, overall, Centessa has a diversified pipeline that spans nephrology, hematology, oncology

Figure 3
Hub-and-spoke business comparison

		Roivant	BridgeBio	Centessa	Fortress	Nimbus	PureTech
Parent	**Founding (HQ)**	2014 (Basel, Switzerland)	2015 (Palo Alto, California)	2020 (Cambridge, Massachusetts)	2006 (New York, New York)	2009 (Cambridge, Massachusetts)	2005 (Boston, Massachusetts)
Parent	**Financing**	Public	Public	Public	Public	Private	Public
Parent	**Formation**	**Central company founded;** first subsidiary (Axovant) from a GSK acquisition	**Central company founded** in 2017 with seven subsidiaries	Merger of 10 private biotech companies	Formed from Coronado Biosciences, a failed public biopharma	**Central company founded** by VC Atlas Venture and in silico drug developer Schrodinger	**Central company founded** with internal assets in development with partners
Parent	**Enterprise focus**	**Diversified**	**Rare genetic disease**	**Diversified**	**Diversified**	**Diversified**	**Diversified**
Parent	**Business model**	In-licenses external assets into subsidiaries Leverages proprietary tech for drug discovery, building into subsidiaries Tech can be licensed out or purchased as a service	Primarily in-licenses programs from academia Leadership redeploys capital and specialist staffing among subsidiaries based on development needs	Acquisition of single-asset or -pathway companies Acts as an accelerator for largely autonomous subsidiaries Performance-based capital allocation from centralized funds	Focused on in-licensing assets Focus on commercially undervalued, low-cost, high-growth-potential, clinical-stage assets Extensive partnerships with academia and biopharma	Computational chemistry drug discovery approach Subsidiaries are legal entities that hold the rights to a program	In-licenses external early-stage assets Leverages proprietary tech for drug discovery, building into subsidiaries Historically, developed assets in subsidiaries only; now has a pipeline at the parent level
Parent	**Centralized resources**	**Management and financing activities** BD expertise R&D support Operational support	**Management and financing activities** Operational support Regulatory support	**Management and financing activities** BD expertise R&D support Operational support Regulatory support	**Management and financing activities** BD expertise	**Management and financing activities** Operational support	**Management and financing activities** BD expertise R&D support
Subsidiary	**Subsidiary* number**	14	~25	10	10	~5**	8
Subsidiary	**Strategic focus**	TAs, modalities or platforms (incl. non-pharma adjacencies)	Genetic or rare diseases and etiologies (e.g., some cancers)	High-value TAs or rare diseases with unmet need	TAs	Causal targets in highly prevalent human diseases	Brain-immune-gut (BIG) interface pathologies
Subsidiary	**Ownership**	Mix of public and private	Private	Private	Mix of public and private	Private	Mix of public and private

*Includes partner companies as well as wholly or partially owned subsidiaries
**Estimated based on three subsidiaries noted for Nimbus on Cortellis and two additional subsidiaries noted on clinicaltrials.gov
Note: VC=venture capital, BD=business development, TA=therapeutic area
Source: L.E.K. analysis of company 10K, 10Q and 20F filings from company websites: Cortellis; FiercePharma; FierceBiotech; PharmaIntelligence; Business Insider; MedCity News; TechCrunch; DCAT; Biospace; Endpoints; lifescivc.com; drug development & delivery; Informa Pharma Intelligence; Biopharma Dive; IAM; Pharmaceutical Technology; Yahoo Finance; Boston Globe; sharecast.com

and other therapeutic areas. However, its subsidiaries are typically more focused.[7] This includes Apcintex, which is focused on a single asset; Capalla, which is focused on monoclonal therapeutics in autoimmune diseases; and Janpix, which is focused on the small molecule protein degrader class. This supports development of high-conviction assets — assets that a company has enough confidence in to bet the success of a subsidiary on them.

The tight focus of the subsidiaries enables scale in core disease areas, onboarding of key talent specialized in these diseases and preservation of an entrepreneurial culture in each subsidiary.

2. Operational efficiency

The hub-and-spoke model may provide a balance between focused subsidiaries and scaled parent enabling functions. It provides the operational efficiencies from shared centralized resources, including synergies (or elimination of dyssynergies) and more structured oversight.

The parent company's centralized support to subsidiaries may include manufacturing, financing, business development and/or legal — functions often less robust in small-scale subsidiaries. Cross-subsidiary synergies may also exist; for example, Roivant's Lokavant[8] supports real-time visualization and risk monitoring of clinical trial data, and was developed originally for use in Roivant-sponsored trials.

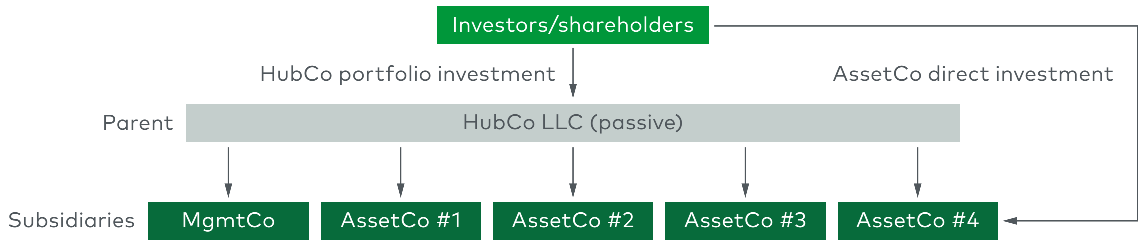
The more experienced parent company may also be able to provide effective governance to its subsidiaries, such as portfolio optimization, through easier termination of underperforming programs given the separation of parent and subsidiary. For example, BridgeBio[9] allows subsidiaries to have operational autonomy, limiting the effects of ill-advised choices by the parent, while the parent company retains management and capital allocation decisions.

3. Flexible fundraising

Hub-and-spoke companies are more flexible in their capital formation strategies, since subsidiaries are not bound to the fundraising strategy of the parent. This may include private or public (e.g., IPO) investment methods, along with debt financing. Roivant, Fortress and PureTech each hold a mix of public and private subsidiaries. The business model also facilitates modularity — allowing for easier mergers/acquisitions, both bringing in new subsidiaries and selling existing ones. Roivant sold its stake in several of its "-vants" (private and public), along with equity in itself, to Sumitomo Dainippon[10] as part of an overall strategic alliance. The deal included $3 billion upfront along with loan agreements. Sumitomo then formed its own hub-and-spoke subsidiary, Sumitovant, which houses its five "-vants."

For investors, hub-and-spoke companies may provide confidence based on a track record of experience, with greater flexibility for investing (see Figure 4). Investors may choose to invest in the parent, which decides how to allocate investments across its subsidiary R&D portfolio.

Figure 4
Investment and payout flow in a hub-and-spoke biotech model



Source: Figure adapted from L.E.K. analysis of company websites; Forbes.com, lifescivc.com

Alternatively, investors may invest only in the subsidiaries, focusing on a particular asset, therapeutic area or modality of interest that they believe will produce the highest returns.

4. Risk mitigation

Hub-and-spoke parent companies diversify risk through a set of subsidiaries. The breadth of the pipeline, spread across subsidiaries with varying development stages and therapeutic area/modality focuses, may insulate the parent from a failure.

For the individual subsidiaries, risk is often consolidated (e.g., single asset, single technology), with failure having greater impact on the subsidiary; the impact on the parent is likely tied to its level of ownership (e.g., greater impact with a wholly owned subsidiary).

With the increased operational efficiency, these hub-and-spoke companies support more assets across subsidiaries than those having a traditional biotech model, providing more "shots on goal" to mitigate the impact of any one asset's failure. BridgeBio has been in existence for approximately six years, has two marketed products and has 15-20 pipeline assets across its subsidiaries. This pipeline amplification also increases the chances of clinical success across the portfolio.

The subsidiary structure may also have benefits in case of portfolio setback and significant value depreciation, potentially shielding the organization from enterprise-wide exposure. In 2017, Axovant's intepirdine failed its Phase 3 in Alzheimer's disease,[11] causing a massive drop in share price. Its private parent, Roivant, survived — restructuring, raising capital, entering partnerships and launching new "-vants" throughout 2018. BridgeBio suffered a similar downside in December 2021: a Phase 3 failure of its lead pipeline asset, acoramidis[12] (a transthyretin amyloidosis (ATTR) therapy), which was part of Eidos — a company spun out from BridgeBio[13] — that had an IPO and then merged back into BridgeBio.[14]

Conclusion

Growing interest in the hub-and-spoke biotech model is clear, as illustrated by the increasing number of companies that have emerged with this structure. While empirical evidence supports several of the model's stated benefits (e.g., enhanced shots on goal, fundraising flexibility), others will likely continue to play out over time. The model offers one strategy for expanding the menu of operating and fundraising options. This may well serve biotech executives facing strategic crossroads. For example:

- When **R&D creates unrelated spillover**, a hub-and-spoke model may provide a mechanism for further funding and developing of discovered assets outside of the company's core focus area

- When there is a **need to manage the financial burden of a broad clinical pipeline or accelerate the path to profitability**, a hub-and-spoke model may facilitate breaking out research from development investments

- When the financial profile of a biotech company becomes too diversified for its shareholders (for example, royalty streams from partnered assets mixed with organic pipeline investments), a hub-and-spoke model may enable the splitting off of a **royalty holding company** from its traditional biotech business model

If you are considering a hub-and-spoke model, L.E.K. may support your decision-making process.

For more information, please contact lifesciences@lek.com.

Endnotes

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